

Q: State your name and business address.

A: Mark Gray. 1111 Washington St. SE, Olympia, Washington

Q: Where are you employed and what is your job title?

A: The Washington Department of Natural Resources employs me in the Resource Protection Division. I am the Fire Regulation and Outdoor Burning Program Coordinator.

Q: What is your educational background?

A: I received a Bachelor of Science degree in Forest Management from Washington State University in 1982.

Q: Summarize your professional experience

A: For the last four years I have been the department's expert on regulations related to fire prevention. I have statewide responsibility for the department's regulatory fire prevention program, outdoor burning and smoke management programs. I have been employed by DNR since 1983. I have been associated with the department's fire program since 1984 as a firefighter, engine leader, crew boss, and task force leader in training. My other positions with the department include timber sale appraiser, field forester, forest inventory analyst, and geographic information specialist. Before working for DNR, I was a fire protection specialist for the U.S. Air Force for two years.

Q: What is the subject matter of your testimony?

A: My testimony relates to DNR's responsibility under RCW 76.04.015 to have direct charge of and supervision of all matters pertaining to the forest fire service of the state. DNR is responsible for providing fire protection to forest lands as defined in RCW 76.04.005(8). DNR is responsible for suppressing forest fires, regulating outdoor burning and the use of spark emitting equipment on state and private forestland. I will be describing the applicable fire prevention requirements on lands protected by DNR, and the reasonable precautions OPL should be required to take to mitigate the risk of forest fire resulting from the construction, maintenance, and use of the Project. Forest fires are any fires occurring on lands, which have enough trees, standing or down, or flammable material, to constitute in the judgment of the department, a fire menace to life or property. Sagebrush and grass areas east of the summit of the Cascade Mountains may be considered forestlands when such areas are adjacent to or intermingled with areas supporting tree growth. Forestland, for protection purposes, does not include structures.

Q: Does the Olympic Pipeline Route cross, or run adjacent to forestland protected by DNR? If yes, identify that land.

A: DNR provides fire protection to all state and private forestland paying forest protection assessment. In some areas these lands are intermingled with improved property (i.e. residential or agricultural) or with federal land. DNR protection starts approximately at mile marker 5 and includes forestland that does not belong

to the federal government along the route to approximately mile marker 102.

Q: What are the forest fire risks created by construction, maintenance, and use of the pipeline?

A: In my opinion, the greatest risk will be from sparks from arc welding and cutting metal, from operating and refueling machinery and vehicles during construction and maintenance of the pipeline. There is also a risk of explosion and fire associated with a leak as shown in Spill Scenario 1.

Q: What has been the occurrence of these types of fires in Washington over the last ten years?

A: Between 1987 and 1996 there were 245 fires caused by sparks from vehicles and other machinery, and 28 fires caused by sparks from welding or cutting metal.

Q: In your opinion, what measures are necessary to mitigate the risks associated with construction and maintenance of the pipeline related to fires on forestland?

A: Strict adherence to Washington's Industrial Fire Precaution Level (IFPL) requirements listed in WAC 332-24-301, and adherence to the Spark Emitting Equipment Requirements stated in WAC 332-24-405. The Industrial Fire Precaution Level System is a four level danger rating system used by all state and federal forest fire protection agencies in Washington and Oregon. The IFPL

system is an objective system for regulating industrial operations on forest land based on current and forecasted weather conditions, the dryness of forest fuels, and the level of fire activity in each of the 38 shutdown zones throughout Washington.

The IFPL levels are:

Level I - Closed Season. Fire Equipment and fire watch service is required. Closed Season is defined in RCW 76.04.005(2) as the period between April 15 and October 15, unless the department designates different dates because of prevailing fire weather conditions.

Level II - Partial Hootowl. Certain spark emitting activities including welding and cutting metal are allowed only between the hours of 8 p.m. and 1 p.m.

Level III - Partial Shutdown. Prohibits cable logging and most chain saw use. All other operations including spark-emitting activities including welding and cutting metal are allowed only between the hours of 8 p.m. and 1 p.m.

Level IV - General Shutdown. All operations are prohibited.

Q: The application contains a product spill analysis (technical report 7). Does that analysis adequately evaluate all the likely scenarios involving explosion and fire resulting from a spill?

A: No. The only spill scenario involving fire (Scenario 1 B - Little Bear Creek) occurs under very favorable weather conditions (light rain, temperature 45F, heavier rains forecast), in an area with good access, and generally low fire hazard. The spill scenarios should include fire scenarios under extreme fire weather conditions, and in eastern Washington forestland where DNR provides fire protection per RCW 76.04.005(8) along the proposed route.

The BEHAVE fire behavior model is the standard for modeling the effects of forest fires.

BEHAVE was developed by the Northern Forest Fire Laboratory in Missoula, Montana. We used BEHAVE to model the fuel spill and fire scenarios under average August weather conditions (Exhibit MG-1, p. 1-3). The first scenario is a fire at Little Bear Creek (Scenario 1 B). Based on the conditions described in Scenario 1 B, BEHAVE estimated that a fire starting under typical August conditions would burn 174 acres before it could be contained. To simulate eastside conditions, an ignition point between mile marker 96 and 97 was selected. Under typical eastside weather and fuel conditions a fire would be likely to reach 5,500 acres before it could be contained.

Washington frequently experiences periods of high to extreme fire danger during the summer months. One measure of this danger is the Ignition Component provided by the National Fire Danger Rating System (NFDRS). The NFDRS is an objective system for evaluating fire danger based on current and forecasted weather conditions, and the dryness of forest fuels. The Ignition Component is the probability of a firebrand producing a fire that will require suppression action. In July and August 1998, at the Stampede Pass remote automated weather station (the closest recording station to the pipeline route in the Cascades) the Ignition Component exceeded ten percent for 26 out of 37 days the station reported data.

The Industrial Fire Precaution Level was at II or III on the pipeline route west of the cascade crest from August 11 to September 28, 1998.

Q: Does Section 1.6 of the application, Pertinent Federal, State and Local Requirements, adequately address all requirements.

A: No. The Section 1.6 does not mention State requirements of RCW 76.04 and WAC 332-24 concerning forest fire prevention. Specifically, the applicable sections are:

332-24-201 Burning permit program--Requirements and exceptions.

332-24-205 General rules--Minimum requirements for all burning.

332-24-211 Specific rules for small fires not requiring a written burning permit.

332-24-217 Burning permit requirements--Penalty.332-24-221 Specific rules for burning that requires a written burning permit.

332-24-261 Dumping mill waste, forest debris--Creation of a fire hazard--Permits

332-24-301 Industrial restrictions.

332-24-401 Felling of snags.

332-24-405 Spark emitting equipment requirements.

332-24-650 Extreme fire hazard requiring abatement

332-24-654 Extreme fire hazard--Liability--Responsibility.

332-24-658 Recovery of costs.

332-24-660 Approved isolation, reduction, or abatement--Relief of liability

Q: Does Section 2.15.1 of the application, Protection from Natural Hazards, address protection from wildfires?

A: No. Section 2.15.1 Protection from Natural Hazards does not mention wildfires.

In the years 1970 to 1996 there were at least 298 wildfires on forestland protected by DNR within one mile of the pipeline.

Q: Does Section, 4.1.2.1 of the application Risk During Construction, adequately address all measures necessary to reduce the risk of fires from pipeline construction?

A: No. Strict adherence to WAC 332-24-301 is necessary to reduce the risk of fires from pipeline construction. Specifically, OPL needs to restrict blasting, welding, and cutting of metal to the hours of 8:00 p.m. and 1:00 p.m. during periods of elevated fire danger (Precaution Levels II and III), and cease all operations during periods of extreme fire danger (Precaution Level IV).

Q: What should OPL do to reduce the risk that open burning associated with the project will cause a wildfire?

A: OPL should adhere to item 12 of the stipulation agreement between OPL and the department of ecology. This stipulation states that “[o]pen burning of vegetation or any other material associated with construction or operation of the Project is prohibited.” OPL may dispose of vegetation by any other means (e.g. piling, chipping, physical removal) as long as the disposal does not create and Extreme Fire Hazard as defined in WAC 332-24-650.

Q: Who should be financially responsible for the cost to suppress any fires caused by OPL or its contractors construction or maintenance of the pipeline?

A: OPL should be financially responsible for any fires caused by construction or use of the pipeline.

I certify and declare under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct to the best of my knowledge and belief.

Signed at _____, Washington on this _____ day of February, 1999.

Mark Gray